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( *Compliments of the Author.* )

### **Costs and Compensations.**

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The conditions under which people live are such that but few have reason to believe that all things will come to him who patiently waits. The day has gone, if it ever existed, when men or corporations can quietly sit down and wait for business and prosperity. Progress in every vocation, business pursuit or scientific attainment, can only be secured through an untiring disposition to overcome every obstacle and clear the way to secure the best at such a cost that the results will be the true compensation. In no other business pursuit or vocation has this truism been more frequently exemplified than in matters pertaining to railroads and their management. It was no sooner deemed certain that by reason of increased safety to trainmen and passengers the compensation would cover the cost and allow a dividend, than the power brake came into general use. So too the increased comfort of a long journey in a Pullman or Wagner car has not only overcome the cost of the cars as well as the increased weight of train service, but compelled their adoption by every road having long through connections, and the projectors of this service are reaping their compensation in steadily increasing dividends upon the capital invested.

We can all remember when the iron rail of from 50 to 60 pounds to the yard was considered the standard, and light rolling stock was to be found on every line, while a steel rail of 70, 80 or even a 100 pounds per yard is considered necessary for all first-class roads of to-day. Now as rails are bought and sold by the ton, it follows that the increased weight is no inconsiderable item in the cost of construction, and yet in the adoption of these heavy rails there is such complete immunity from some of the chances of derailment, opportunity to use so much heavier locomotives, and increased tonnage per mile, that the compensation is greater than the cost.

A well conducted railway medical and surgical service that has the interest and welfare of employe and employer always in sight will be a considerable item of expense, yet who will be so rash as to say that compensation has not been received when humanity is relieved from suffering, the interests of the corporation are served, and the good will of patrons and employes is secured? So far as I can learn such has been the result on the Missouri Pacific, the Wabash, the Pennsylvania, the Baltimore & Ohio, as well as on other roads where the employes receive the same care and treatment that would be accorded the management under similar circumstances. When every victim of disaster or disease has the best care and medical and surgical skill the country affords such work can safely count as a dividend on all classes of stock. Thus a medical and surgical administration conducted with due regard for all concerned will become a gilt-edged investment that to the employe is an angel of mercy and to the management a satisfactory solution of an important problem, while the stockholders will have a feeling



of supreme satisfaction at having performed their duty to their fellowmen without loss to themselves.

The relief department of the Baltimore & Ohio, the Pennsylvania and other roads entails liberal expenditure of money, which, directly or indirectly, is contributed by the roads, yet the compensation of having secured a happy, contented and industrious complement of employes who have a due regard for the welfare of the road, and intelligent oversight of the rolling stock a personal interest in the prosperity of the line, thus cutting down the operating expenses and the construction account, must more than cover the cost. The half million dollars annually expended by the Baltimore & Ohio railroad and the \$8,000 per month collected from the employes of the Missouri Pacific and wisely expended for their benefit when sickness or accident overtakes them, have, in the increased happiness and longer life of the individual, a compensation far beyond the outlay.

While we are considering the mutual relations of costs and compensations to the management and employe, let us not forget the patrons of the road. They are the people whose connection with the railways of this country makes dividends possible, as well as the construction of new roads a necessity, and who with a patience born of long suffering continue to ride over our lines at considerable cost to themselves, although without much compensation in the way of comfort or healthful surroundings. They certainly deserve some consideration from an association like ours. Very few coaches have anything like an adequate system of ventilation for a full complement of passengers, neither are the employes usually instructed in the management of such as exists. Our train service has not advanced so rapidly as the other departments. Elegant and expensive coaches are the rule, and we boast of our fast trains, but with steam heat the brakeman or other person in charge must be instructed to attend to other duties than simply calling the names of stations and making the journey a pleasant pastime for the young lady passengers. Unskilled men would be of no service as car inspectors, neither are they serviceable in running trains, and as the car inspector must be trained for his work, so should the brakeman receive instruction regarding the heating and ventilation of his coaches. The complicated system of heating now in use involves the exercising of a greater degree of intelligence and judgment on the part of the brakeman than was formerly called for.

The ordinary coach has a capacity of about 4,000 cubic feet of air space, and a seating capacity for 60 passengers. With all the seats occupied and with no fresh supply, the air will become exhausted in a single minute, and is then contaminated and unfit to breathe unless renewed. Fortunately coaches are not constructed so that it is possible to have them hermetically sealed. In view of these facts can a car be so constructed as to secure a renewal of the atmosphere therein as rapidly and constantly as the demand requires? Improvements are being made from year to year, yet all sensible people agree that the desired result has been but imperfectly secured as yet. In justice to the master mechanics who construct our cars it should be said that until brakemen and others are instructed in the use of our present system of heating and ventilating the result will always be unsatisfactory.

Will this extra work pay? Will the compensation cover the cost? It is generally conceded in the east that a dining car does not directly pay the



expenses incident to the cost of the service, yet it is well understood that indirectly it pays a large dividend in advertising the line over which it passes; therefore the cost and compensation are equalized. And while clean cars and well ventilated coaches require considerable outlay of money, yet to a through line the advertising thus secured will return a good dividend on the amount invested and afford the management as large a compensation as would a liberal supply of printer's ink invested in describing the picturesque, the beautiful and the other natural advantages of their line. On the other hand, suppose the printer's ink be used in showing up, on a through line, the unsanitary condition of the cars, the poor ventilation, the filthy condition of the water closets, the fact that the car windows are so covered with dust and dirt that the curtains are unnecessary, that trainmen are noisy, uncivil, etc., how long would it be, in this enlightened age, before the tide of travel would set toward the rival line offering better hygienic accommodations? Corporations, like individuals, do not work altogether for glory, but for the money there is in it; therefore every faculty of the management is brought to bear in the endeavor to secure for their respective lines such business facilities as will allow them to earn operating expenses and a dividend. To do this in passenger work will soon require that hygiene and sanitation shall be considered in the construction of cars as well as in looking after their care while in service, for the public are becoming critical on these matters.

That those connected with the train service should be required to do this work is not questioned; but until such employes are properly educated in the work and have some knowledge of the elementary principles of hygiene and sanitation it will be useless to expect anything like a system in car cleaning and train service that will prove satisfactory. This assertion need not frighten any one, for the first principles of hygiene and sanitation are in no wise complex, neither do they present a problem that cannot be solved by a little forethought and a comprehensive and common sense view of the situation.

To say that a coach or a house should be kept clean in every part and place is a very common-place observation, and still it involves one of the first principles in sanitation, as well as in surgery and in medicine. It ought not to be a very severe task to instill into the mind of the car cleaner this principle, nor to make the average brakeman understand that he will be held responsible that his car is clean, and for the best use of such devices for heating and ventilation as may be found about the train; yet his attention must be called to such facts, and there must be some one who will call him to account whenever untidy and unwholesome conditions are to be found.

This is an important department and there should be at its head an expert in such matters, the same as has been found necessary in freight, passenger and operating bureaus. To do this and not excite friction among employes is a matter requiring tact as well as a thorough knowledge of the requirements of the service. This last fact is an important one on lines running coaches many hundred miles and through considerable variation of climate, as the longer a continuous run is made, the more care is necessary to prevent the coach from becoming unwholesome and unhealthful. Unfortunately, train crews are often shifted, even when the whole train makes long distance journeys, as the reasons for any untidy conditions are usually

shifted from one division to another; yet men should not be required to work continuously more than a reasonable number of hours. Therefore it would seem all the more necessary for the management of all through lines to adopt some common mode of enforcing good hygienic regulations.

Every member of this association has more or less knowledge of the sanitary condition of the cars, depots and grounds of the section of road he has occasion to pass over, and without special trouble to himself may become more intimate with the existing conditions, and through him the surgeon-in-chief or the general manager can obtain by a system of reports, at comparatively small expense, a knowledge of the hygiene of the road as well as what may be necessary to reform any special neglect. The same machinery working from a central office can be made to accomplish a great deal toward satisfying the public when comfort of traveling is under consideration. It is true this work may not be so eminently satisfactory to the surgeon as the saving of life by reason of some brilliant surgical operation. However, the patron of the road who is enabled to make a journey across the continent without suffering the discomforts arising from the lack of an intelligent care of the heating and ventilating of coaches, and who can arrive at his destination in a good sound, healthy, vigorous condition, ready for business so soon as the train comes to a full stop, will never forget that line nor fail to draw congratulatory conclusions regarding the management whose intelligent care has been the means of rendering such results possible. It may be considered an aphorism that the patron of the road, as well as the employe, does not intend to have any use for a surgeon. It is only when misfortune overtakes the people that they are glad to make our professional acquaintance, and having occasion to call our attention to their condition they do not feel especially in a mood to congratulate the management on the fact that they have been injured while in their service. Our duty to such as have been injured is plain and will be understood by every member of this association.

Modern surgery demands that every known precaution shall be taken to prevent septic infection, and as railway injuries are generally of such a nature as to render it probable that something of an infected character may have been in contact with the wound, we are in duty bound to destroy, as far as possible, such septic influence by freely using well-known antiseptic remedies. This being our duty to those who have been so unfortunate as to be injured, are we not under some obligation to others who are more fortunate and escape injury by accident? Have they not a claim upon us as an association educated in these matters and therefore competent to give advice and instruction in all that relates to hygiene and sanitation? More than this, are we not under a moral obligation to the management that employs and pays us for looking after the interests of its line? Shall we not endeavor to secure such hygienic conditions along the line and in its coaches that the road will not lose caste and patronage by reason of sanitary neglect that a little effort on our part might easily prevent?

The cost of such supervision would be trifling, while the resulting increase of patronage, good will and hearty commendation of the public would be a compensation that can scarcely be estimated.

By associated effort, rules and regulations looking to the comfort of passengers as well as regulating the transportation of invalids, might be effected. These being the same in all parts of the country and issued by



every road would not be esteemed especially arbitrary, as such orders might be if promulgated by a single management.

I suppose no one will for a moment question the right of the public to demand that those ill with contagious and infectious diseases shall be excluded from the coach occupied by those who are free from such diseases, and that a car which has been used to transport one or more cases of such diseases shall be properly renovated, cleansed and disinfected before it shall take its place again on the line and be occupied by an unsuspecting public.

Who else can conduct such work and give directions regarding the manner in which it shall be done and determine when a coach can be safely occupied, as well and economically as those whose education has been in that direction? Having such education shall we withhold our advice because it does not directly and distinctly belong to the art of surgery? Shall we wait until the management calls our attention to the fact that a reform in the sanitation of its road has become necessary? Does the head of the passenger or freight department wait for the general manager to suggest how the service can be improved or the business of the line materially improved.

It is true our association is in its infancy; that but little concert of action has been developed, and in some sections of the country individual members have contributed but little time and effort to improve the efficiency of a surgical department. It is also true that before any great advancement can well be made it must be fully demonstrated that the compensation will directly or indirectly cover the cost.

The whole matter may be summed up in a few words, viz.: Does the public good require any services of this nature? And we may rest assured that when public opinion becomes thoroughly aroused upon this or any other subject, whereby a change is demanded, something will come of it, as there always arises some ruling genius whose fertile brain has the power to suggest a means to the required end. Under conditions like these there may be a decided sacrifice of individual opinions; business relations and commercial interests may seem in danger of being compromised; the cost may seem extravagant—yet when public opinion demands a reform by reason of educated public sentiment it is sure to be effected, and it matters not whether it emerges from the formal dignity of the social circle, has been surrounded by the sanctity of religious creeds, was a political hobby, a business method, or an antiquated system of transportation, the effect is the same. Progressive ideas will prevail, effete notions will give way to a higher standard of work and efficiency; therefore, directly or indirectly, the compensation is commensurate with the cost.

It is unnecessary for me to ask your attention to the atmospheric conditions so often to be found in cars making long distance connections, or to the untidy conditions that often are present about the buildings and grounds of railway stations. You are all familiar with such scenes and doubtless recall the results of experimental investigations made by Drs. Reed, Kedzie and others.

How often when riding upon trains do we overhear the passengers commenting among themselves upon the unsanitary conditions surrounding them. And unfortunately for the good name of the road, the criticisms are directly or indirectly aimed at the management—directly because these

people are suffering from the discomforts of an untidy apartment and an unwholesome atmosphere, and indirectly because the average trainman seems to be utterly unconscious and oblivious to the fact that he has any duties to perform that would improve the situation.

In this connection I would suggest that the managers of our roads are as liable to suffer from unsanitary conditions as any other class of people, for the reason that in the performance of their duties they are obliged to make long distance journeys under the same or similar conditions as the traveling public, while in most instances they are engrossed with matters of business and the mind is intensely occupied. As medical men we are well aware that the mind overworked and weighted down with business cares has a material effect upon the body, and under such circumstances there is but little or no resistance to the invasion of disease. Some will break down prematurely with the best of care, but the majority should retain the vitality necessary to longevity.

In our association with these men have we no duty to perform? A few days since the Medical Times and Register, referring to one of the brightest and most promising members of our profession on whom the doors of an asylum had closed, said: "What an ending for such a life! Hard work, no rest, no Sabbath, no vacation; by such means his powerful intellect carried him to the forefront of his profession; but at last outraged nature reached her limit of endurance, and the breakdown was complete."

Such cases are by no means rare nor entirely confined to professional men. Our high pressure system of business methods requires a sound mind in a sound body, without which the most brilliant and progressive will succumb to the intense strain and activity necessary for decided success. It may be a lesson we are slow to learn, one that has to be enforced by an occasional thrilling fact, as witnessed when some man in the full tide of a successful business career suddenly drops out and is seen no more in his accustomed place—that the most robust physique has its limit of endurance, that the best mental fibre may succumb to undue stress at a single point.

With all the beauties of our vaunted civilization are we not in some degree responsible for many pathological phenomena? However zealous we may be in combating the thousand and one ills and accidental misfortunes of our race, the claims of sanitation ever loom up before us and there is still the problem of hygienic science with its wonderful possibilities only partially solved.

The question of the prevention of accident and disease is too broad to be discussed in a meeting like this, but the consideration of what may be done to increase the efficiency of the railway service and place it upon a more substantial basis by means of a more intelligent appreciation of the manifold dangers to health that surround the management and employe is a matter that should be met in the same manner as any other business problem. Theory and practice must coincide, the æsthetic and sentimental cannot claim precedence, harmony of action must prevail at every point, and the good of the service must be the acme of personal ambition. It is a well known fact that in army life the health of the soldier is of such prime importance that the officers are instructed never to lose sight of the sanitary conditions surrounding the men, and in view of the fact that railways are common carriers and are held responsible therefore, it is equally important that the great army of



employees in their service should possess a sound mind in a sound body. When considered in this light it becomes a simple problem, complications are eliminated, natural forces prevail over artificial methods. The cost may be no inconsiderable an item, but the compensation will be sufficient to allow a large dividend upon the investment.

#### DISCUSSION ON DR. CONN'S PAPER.

Dr. R. Harvey Reed, Mansfield, Ohio—Dr. Conn's paper is certainly one of great interest to every person. It is not only interesting to railroad surgeons, but it is interesting to every passenger who rides on our trains every day. And when we consider the great number of people who live on railway trains, so to speak, and then consider the large number of people who die annually of consumption, who come from the east and the west, and from the north and the south, and are pent up in these cars with those supposed not to have consumption, it is a question of great importance whether they should be conveyed in these cars without proper ventilation, or not. I do not desire to make any criticism on our railway management; a great variety of cases are called to the attention of the general managers of railroads and they have a great many perplexing things to contend with each year. This matter increases from year to year and their duty becomes greater as the railway mileage of this country increases and the demands upon them are necessarily larger. At the present time we have some new features introduced on our railway cars. Steam has been introduced into our passenger coaches and vestibule trains, and with the vestibuled trains we have—instead of one car being separated by itself—the entire train open, as it were, like one vast corridor from the hind car to the front. Now it requires a different method of ventilation under these circumstances, and more careful attention. Take the ordinary brakeman—he knows nothing about the proper temperature or correct ventilation of cars. The company may have a thermometer hung up in each car, but that signifies but little. It tells the degree of heat, but not the amount of pure air introduced, or the amount of foul air taken out of the car.

Another point. With the steam radiators as they are on some of our railroads we have people complaining of being cold when the brakeman turns on the steam; then in a few minutes somebody complains of being too hot, when he turns it off and the next thing they are frozen. What I want to say is this, there should be a man employed whose duty should be to attend to the heating and ventilation especially, and should not only be educated to know how to regulate the temperature and also the supply of fresh air and exhaust of foul air; but he should have coaches so built that this could be readily accomplished without the necessity of open windows, doors or transoms, and at the same time keep a regular temperature throughout the car and a bountiful supply of clean fresh air for every passenger, and exhaust the foul air as fast as it is produced.

